Supporting Information

Role of Sn/ZSM-5 in direct syngas conversion

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1. Figures.

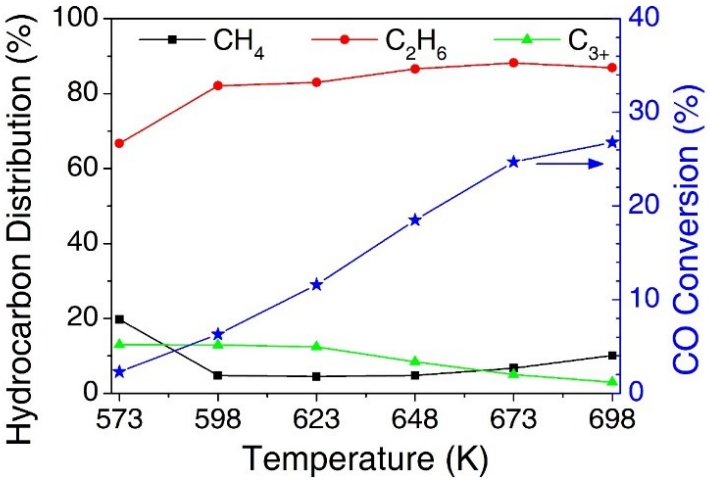

Figure S1 Catalytic performance of $Sn_{1.02}$/ZSM-5 under different temperature. Reaction condition: H_2:CO = 2.5, 4.0 MPa, 1500 mL/(g_{cat}·h).

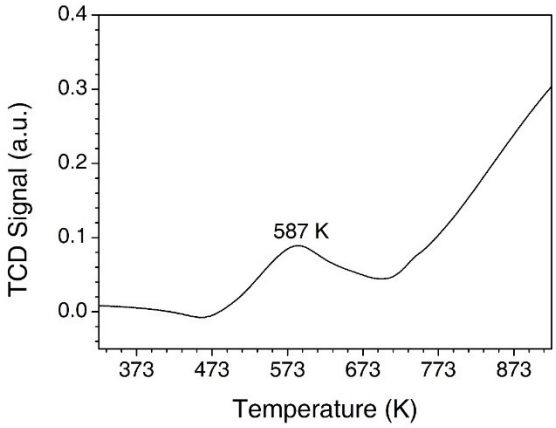

Figure S2 Temperature programmed reduction of SnO_2 in hydrogen.

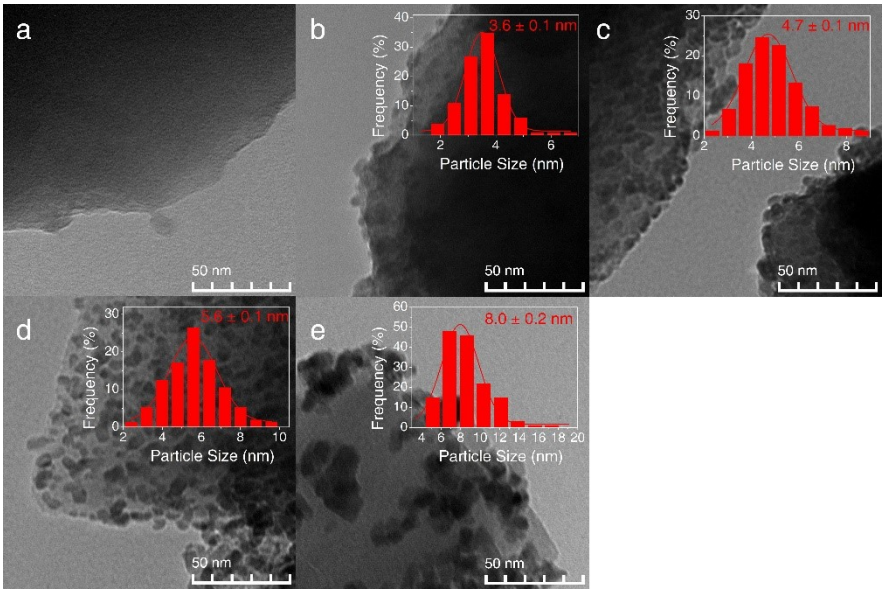

Figure S3 TEM results of Sn_x/ZSM-5 with different Sn loading. (a) ZSM-5; (b) $Sn_{0.04}$/ZSM-5; (c) $Sn_{0.17}$/ZSM-5;(d) $Sn_{0.29}$/ZSM-5; (e) $Sn_{1.02}$/ZSM-5.

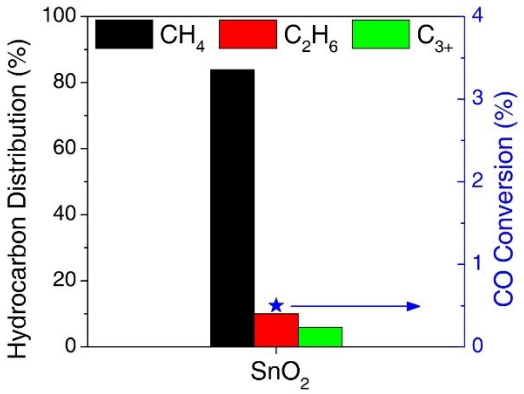

Figure S4 Catalytic performance of SnO_2 (10 nm) in direct syngas conversion. Reaction condition: 673 K, 4.0 MPa, H_2/CO = 2.5/1, 1500 mL/(g_{cat}·h).

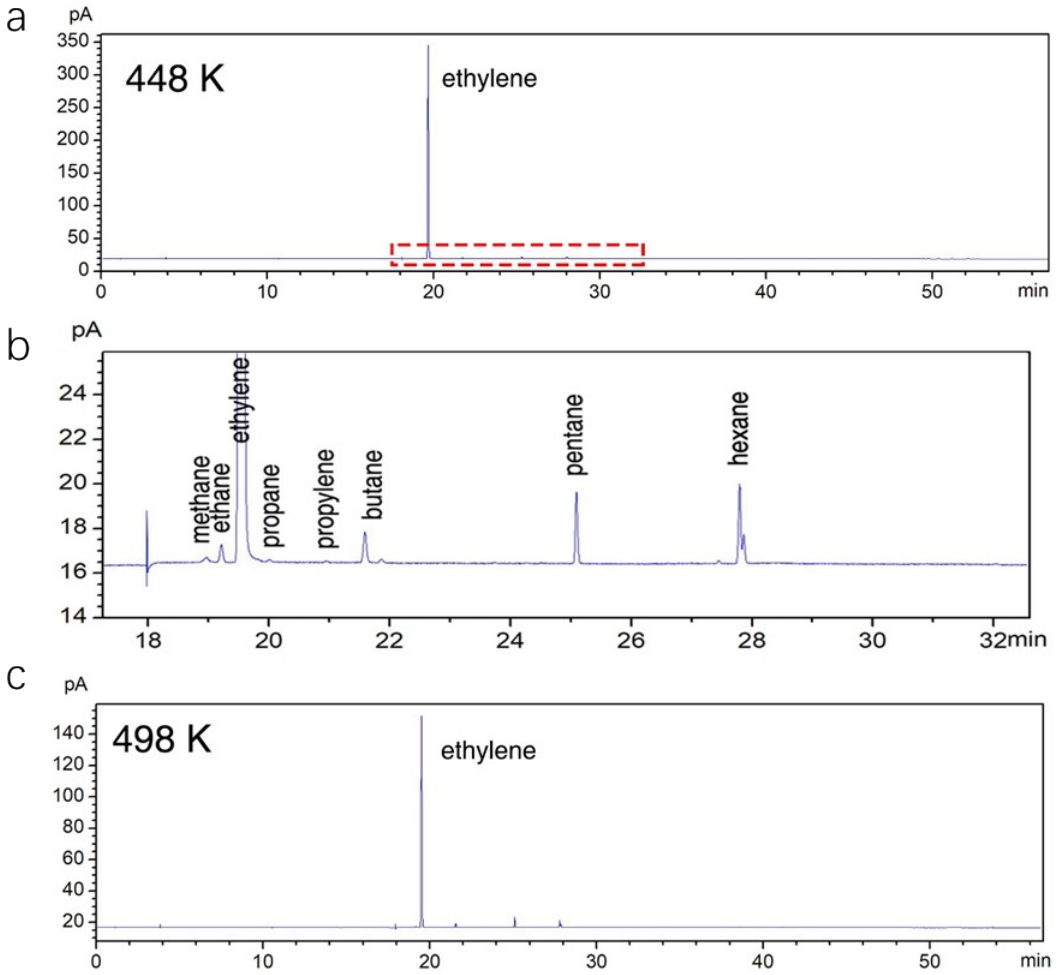

Figure S5 Gas chromatography monitoring the reaction of 4.0 MPa syngas-treated $Sn_{0.29}$/ZSM-5 in H_2 at different temperatures. (a) 448 K; (b) Enlarged profile of the marked red region of figure a; (c) 498 K.